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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,603	08/28/2001	Shunichi Ishikawa	019519-320	3289

7590

04/01/2003

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EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

DATE MAILED: 04/01/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/939,603

Applicant(s)

ISHIKAWA ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply is set at less than thirty (30) days, a reply, within the statutory maximum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 8/28/00. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

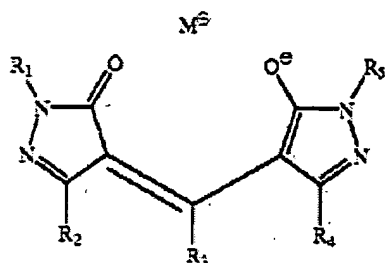
4. Claims 1 and 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. 6,184,268) in view of either Evans et al. (U.S. 6,136,079) or Helber et al. (U.S. 6,093,510).

Nichols et al. disclose ink jet ink comprising 1-20% dye that has particle size of 0.001-2 μm and 0.1-5% latex that has average particle size of 0.05-0.5 μm . The latex is obtained from monomers including acrylic acid. The ink has surface tension of 40-100 dynes/cm, viscosity less than 10 cP, and pH of approximately 5-7. There is also disclosed a method wherein the ink is printed onto coated paper (col.6, lines 2-20, col.7, lines 27-30, col.11, lines 51-58 and 60, col.12, lines 50-58, col.14, lines 47-64, col.15, lines 3-14, and Table in col.19).

The difference between Nichols et al. and the present claimed invention is the requirement in the claims of specific type of dye.

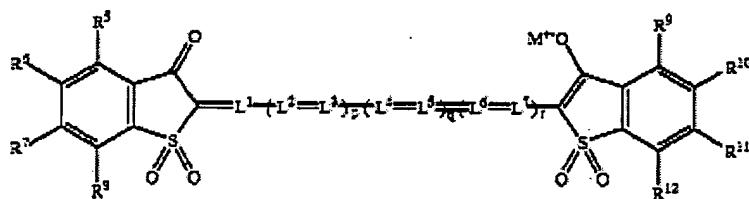
Evans et al., which is drawn to ink jet ink disclose dye of the formula:

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Although there is no disclosure that the dye is a J-aggregate, given that the dye is identical to that presently claimed and used in the present invention (see formula (2) in claim 11 when n is 0), it is clear that the dye is in fact a dye J-aggregate. The motivation for using such dye is that it possesses superior color, water-solubility, and light stability (col.2, lines 21-50).

Alternatively, Helber et al. disclose the use of J-aggregate dye of the formula:



which is identical to dye presently claimed. Helber et al. also disclose that such dye is suitable for use in inks. The motivation for using such dye is that it possesses sharp cutting spectral features (col.6, lines 5-26, col.16, lines 62-64, and col.21, lines 44-50).

In light of the motivation for using dye J-aggregate disclosed by either Evans et al. or Helber et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dye in the ink of Nichols et al. in order to produce ink with superior color,

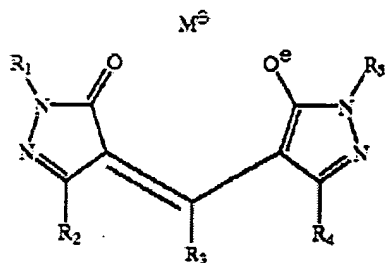
water-solubility, and light stability, or alternatively, sharp cutting spectral features, and thereby arrive at the claimed invention.

5. Claims 2-3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. 6,184,268) in view of Idei et al. (U.S. 5,302,437) and either Evans et al. (U.S. 6,136,079) or Helber et al. (U.S. 6,093,510).

Nichols et al. disclose ink jet ink comprising 1-20% dye that has particle size of 0.001-2 μm and 0.1-5% latex that has average particle size of 0.05-0.5 μm . The ink has surface tension of 40-100 dynes/cm, viscosity less than 10 cP, and pH of approximately 5-7. There is also discloses a method wherein the ink is printed onto coated paper (col.6, lines 2-20, col.7, lines 27-30, col.11, lines 51-58 and 60, col.12, lines 50-58, col.14, lines 47-64, col.15, lines 3-14, and Table in col.19).

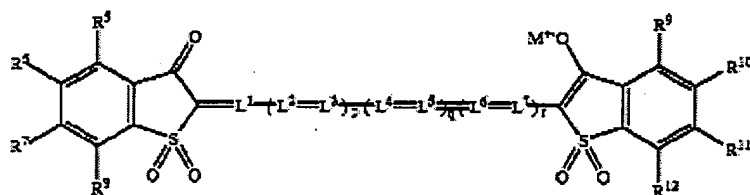
The difference between Nichols et al. and the present claimed invention is the requirement in the claims of (a) specific type of dye and (b) specific type of image receiving material.

Evans et al., which is drawn to ink jet ink disclose dye of the formula:



Although there is no disclosure that the dye is a J-aggregate, given that the dye is identical to that presently claimed and used in the present invention (see formula (2) in claim 11 when n is 0), it is clear that the dye is in fact a dye J-aggregate. The motivation for using such dye is that it possesses superior color, water-solubility, and light stability (col.2, lines 21-50).

Alternatively, Helber et al. disclose the use of J-aggregate dye of the formula:



which is identical to dye presently claimed. Helber et al. also disclose that such dye is suitable for use in inks. The motivation for using such dye is that it possesses sharp cutting spectral features (col.6, lines 5-26, col.16, lines 62-64, and col.21, lines 44-50).

With respect to difference (b), Nichols et al. disclose printing the ink on coated paper, however, there is no disclosure that the paper comprises image receiving layer comprising inorganic white pigment as presently claimed.

Idei et al., which is drawn to ink jet recording sheet, disclose that when the ink jet recording is carried out on non-coated, i.e. plain, paper, the images are low in colorfulness, clarity, printed dot density, and image density resulting in a deterioration of dot shape, feathering, and strike-through. Idei et al. also disclose that when ink jet recording is carried out

on a coated paper, the colorfulness, clarity, feathering, and strike-through are improved as compared to recording on non-coated paper. The coated paper includes paper having a silica coating (col.3, lines 15-42 and 57-66 and col.4, lines 54-57).

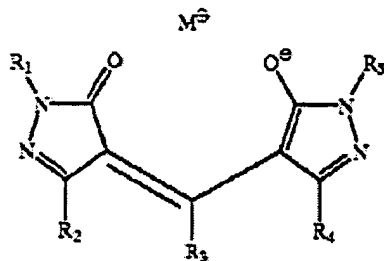
In light of the motivation for using dye J-aggregate disclosed by either Evans et al. or Helber et al. as described above and for using paper coated with image receiving layer disclosed by Idei et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dye and paper in Nichols et al. in order to produce ink with superior color, water-solubility, and light stability, or alternatively, sharp cutting spectral features, and to produce printed images with improved colorfulness, clarity, feathering, and strike-through and thereby arrive at the claimed invention.

6. Claims 1, 5, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helling et al. (U.S. 6,313,196) in view of either Evans et al. (U.S. 6,136,079) or Helber et al. (U.S. 6,093,510).

Helling et al. disclose ink jet ink comprising dye that has particle size of 10-100 nm and water-dispersible ionically modified polymer that has average particle size of, for instance, 60 nm. The ratio of dye to pigment is 1:20 to 1:1. There is also disclosed a method wherein the ink is printed onto paper comprising image receiving layer (col. 1, lines 3-7 and 50-52 and col.7, lines 18 and 51-59).

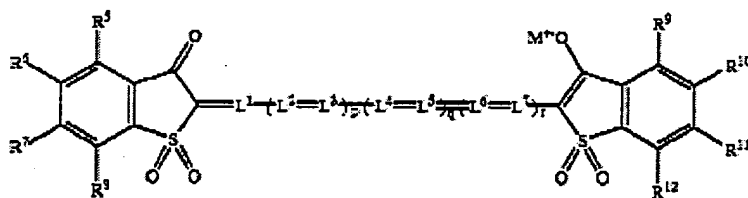
The difference between Helling et al. and the present claimed invention is the requirement in the claims of specific type of dye.

Evans et al., which is drawn to ink jet ink disclose dye of the formula:



Although there is no disclosure that the dye is a J-aggregate, given that the dye is identical to that presently claimed and used in the present invention (see formula (2) in claim 11 when n is 0), it is clear that the dye is in fact a dye J-aggregate. The motivation for using such dye is that it possesses superior color, water-solubility, and light stability (col.2, lines 21-50).

Alternatively, Helber et al. disclose the use of J-aggregate dye of the formula:



which is identical to dye presently claimed. Helber et al. also disclose that such dye is suitable for use in inks. The motivation for using such dye is that it possesses sharp cutting spectral features (col.6, lines 5-26, col.16, lines 62-64, and col.21, lines 44-50).

In light of the motivation for using dye J-aggregate disclosed by either Evans et al. or Helber et al. as described above, it therefore would have been obvious to one of ordinary skill in

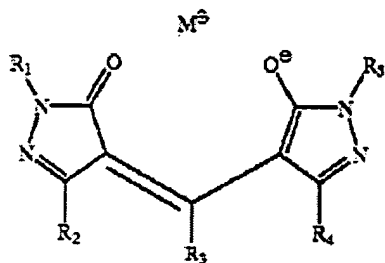
the art to use such dye in the ink of Helling et al. in order to produce ink with superior color, water-solubility, and light stability, or alternatively, sharp cutting spectral features, and thereby arrive at the claimed invention.

7. Claims 2-3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helling et al. (U.S. 6,313,196) in view of Idei et al. (U.S. 5,302,437) and either Evans et al. (U.S. 6,136,079) or Helber et al. (U.S. 6,093,510).

Helling et al. disclose ink jet ink comprising dye that has particle size of 10-100 nm and water-dispersible ionically modified polymer that has average particle size of 60 nm. The ratio of dye to pigment is 1:20 to 1:1. There is also disclosed a method wherein the ink is printed onto paper comprising image receiving layer (col. 1, lines 3-7 and 50-52 and col.7, lines 18 and 51-59).

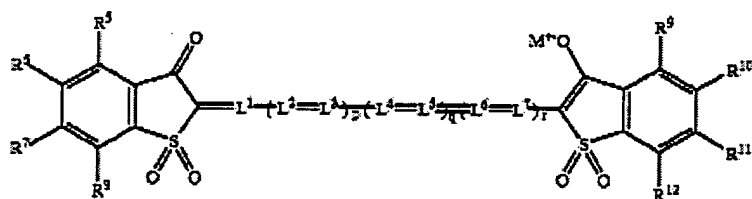
The difference between Helling et al. and the present claimed invention is the requirement in the claims of (a) specific type of dye and (b) specific type of image receiving material.

Evans et al., which is drawn to ink jet ink disclose dye of the formula:



Although there is no disclosure that the dye is a J-aggregate, given that the dye is identical to that presently claimed and used in the present invention (see formula (2) in claim 11 when n is 0), it is clear that the dye is in fact a dye J-aggregate. The motivation for using such dye is that it possesses superior color, water-solubility, and light stability (col.2, lines 21-50).

Alternatively, Helber et al. disclose the use of J-aggregate dye of the formula:



which is identical to dye presently claimed. Helber et al. also disclose that such dye is suitable for use in inks. The motivation for using such dye is that it possesses sharp cutting spectral features (col.6, lines 5-26, col.16, lines 62-64, and col.21, lines 44-50).

With respect to difference (b), Helling et al. disclose printing the ink on coated paper, however, there is no disclosure that paper comprising image receiving layer comprising inorganic white pigment as presently claimed.

Idei et al., which is drawn to ink jet recording sheet, disclose using paper coated with silica in order to produce image with improved colorfulness, clarity, feathering, and strike-through (col.3, lines 15-42 and 57-66 and col.4, lines 54-57).

In light of the motivation for using dye J-aggregate disclosed by either Evans et al. or Helber et al. as described above and for using paper coated with image receiving layer disclosed by Idei et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dye and paper in Helling et al. in order to produce ink with superior color, water-solubility, and light stability, or alternatively, sharp cutting spectral features, and to produce printed images with improved colorfulness, clarity, feathering, and strike-through and thereby arrive at the claimed invention.

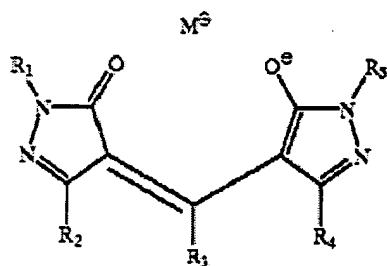
8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. 6,184,268) or Helling et al. (U.S. 6,313,196) either of which in view of Hasegawa et al. (U.S. 4,832,984) and either Evans et al. (U.S. 6,136,079) or Helber et al. (U.S. 6,093,510).

Nichols et al. disclose ink jet ink comprising 1-20% dye that has particle size of 0.001-2 μm and 0.1-5% latex that has average particle size of 0.05-0.5 μm . The ink has surface tension of 40-100 dynes/cm, viscosity less than 10 cP, and pH of approximately 5-7. There is also disclosed a method wherein the ink is printed onto coated paper (col.6, lines 2-20, col.7, lines 27-30, col.11, lines 51-58 and 60, col.12, lines 50-58, col.14, lines 47-64, col.15, lines 3-14, and Table in col.19).

Alternatively, Helling et al. disclose ink jet ink comprising dye that has particle size of 10-100 nm and water-dispersible polymer that has average particle size of 60 nm. The ratio of dye to pigment is 1:20 to 1:1. There is also disclosed a method wherein the ink is printed onto paper comprising image receiving layer (col. 1, lines 3-7 and 50-52 and col.7, lines 18 and 51-59).

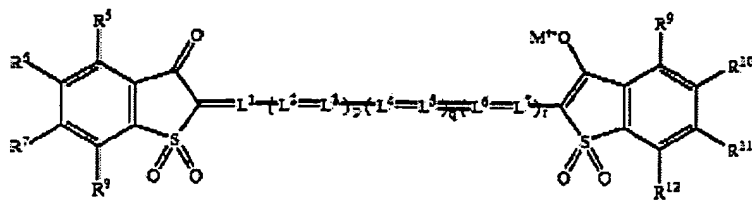
The difference between Nichols et al. or Helling et al. and the present claimed invention is the requirement in the claims of (a) specific type of dye and (b) specific type of image receiving material.

Evans et al., which is drawn to ink jet ink disclose dye of the formula:



Although there is no disclosure that the dye is a J-aggregate, given that the dye is identical to that presently claimed and used in the present invention (see formula (2) in claim 11 when n is 0), it is clear that the dye is in fact a dye J-aggregate. The motivation for using such dye is that it possesses superior color, water-solubility, and light stability (col.2, lines 21-50).

Alternatively, Helber et al. disclose the use of J-aggregate dye of the formula:



which is identical to dye presently claimed. Helber et al. also disclose that such dye is suitable for use in inks. The motivation for using such dye is that it possesses sharp cutting spectral features (col.6, lines 5-26, col.16, lines 62-64, and col.21, lines 44-50).

With respect to difference (b), Hasegawa et al., which is drawn to ink jet recording medium, disclose the use of substrate coated with lower image receiving layer comprising pigment such as silica and upper layer comprising water-dispersible polymer such as acrylic resin wherein the ink passes through the upper layer to reach the image receiving layer. The motivation for using such recording medium is to obtain image that has excellent water resistance and light resistance (col.3, lines 9-18 and 21-27, col.4, lines 41-43, col.5, lines 8 and 23, and col.9, lines 17-21).

In light of the motivation for using dye J-aggregate disclosed by either Evans et al. or Helber et al. as described above and for using coated paper disclosed by Hasegawa et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dye and paper in either Nichols et al. or Helling et al. in order to produce ink with superior color, water-solubility, and light stability, or alternatively, sharp cutting spectral features, and to produce printed images with good water resistance and anti-blocking properties, and thereby arrive at the claimed invention.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Lonsky et al. (U.S. 6,441,191), Chen et al. (U.S. 6,013,430), EP 460550, and Diehl et al. (U.S. 5,213,956) each disclose dye J-aggregate, however, there is no disclosure or suggestion to use dye in aqueous ink composition as presently claimed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho
Examiner
Art Unit 1714

CS
March 28, 2003